REMARKS

Claims 1-33, and 48 are the claims pending in the application. Applicant has incorporated modified claim 47 into the independent claims, and thus has canceled claim 47 without prejudice or disclaimer. Finally, Applicant respectfully traverses the prior art rejection based on the following discussion.

I. The Prior Art Rejection

Claims 1-33, 47 and 48 are rejected under 35 U.S.C. Section 103(a) as being unpatentable over Takits ("Takit")(EP 0959057A1) in view of Brown, et al. ("Brown")(U.S. Patent No. 4,764,316).

A. The Rejection Based on Takit in view of Brown

Regarding independent claims 1, 10, 24 and 48, which incorporate modified claim 47, and related dependent claims 2-9, 11-23, and 25-33, first the references, separately, or in combination, fail to disclose, teach or suggest a reason or motivation for being combined.

As previously discussed in the Amendment of April 27, 2007, Takit pertains to a system of an oxidizer coated with a binder and inorganic particles further combined with a fuel composition, and related method, for reducing the sensitivity of the oxidizer to mechanical energy where Takit suggests that the oxidizer is an inorganic material not an organic material, such as, nitramine. (See Takit at Abstract; Column 1, lines 5-32 and Column 2, lines 1-18; and Column 2, line 55-Column 3, line 3).

By contrast, Brown pertains to a process for forming solid propellant grains with a low total weight percentage of fuel particulates where the process is focused on

overcoming manufacturing difficulties and limitations in order to produce better quality propellant grains where the oxidizer may likely be an organic material, such as, RDX and HMX. (See Brown at Abstract; Column 1, lines 5-10 and lines 35-63; and Column 5, lines 10-22).

Nothing within Takit, which relates only to an inorganic oxidizer coated with inorganic particles and fuel composition for reducing the sensitivity of the oxidizer to mechanical energy, suggests a process, which overcomes manufacturing difficulties, for forming solid propellant grains using an organic oxidizer as disclosed in Brown, and further suggested in the Office Action. Indeed, the above two technologies with different focuses appear to use different oxidizer materials and manufacturing techniques, which teach away from each other, and combining such references may likely destroy the function of these technologies. Therefore, Takit's technology using an inorganic oxidizer cannot be effectively combined with Brown using an organic oxidizer, such as, RDX or HMX, as suggested. Thus, and using the most recent and more relaxed interpretation of obviousness under KSR v. Teleflex, No. 04-1350, 550 U.S. __ (April 30, 2007), one of ordinary skill in the art would not have combined these references absent hindsight. (See Office Action, Page 6, lines 3-7).

Second, even assuming that the references would have been combined, the references do not disclose, teach or suggest the features of independent claim 1, including the substantially uncoated fuel particles are non-encapsulated substantially uncoated fuel particles in contact with the binder. Similarly, the references do not disclose, teach or suggest the features of independent claims 10, 24 and 48, including the free fuel particles are non-encapsulated free fuel particles in contact with the binder. (See Application, Page

7, lines 2-8; Page 10, lines 14-19; Page 14, line 14-Page 15, line 8; and Page 19, line 12-Page 21, line 4).

Indeed, Applicant agrees with the Office Action, which expressly indicates that Takit fails to disclose, teach or suggest "the oxidizer being a nitramine," a feature of independent claims 1, 10, 24 and 48. To be sure, Takit includes an inorganic oxidizer, a binder and inorganic particles unlike Applicant's organic binder and oxidizer system. Based on this structural distinction, Takit expressly discloses that the coated oxidizer is coated with inorganic particles so that the coated oxidizer, that is, the binder surface of the coated oxidizer, does not directly contact the fuel unlike the claimed feature of Applicant's invention as cited above. Accordingly, Takit is deficient. (See Office Action, Page 2, Second Paragraph, lines 6-16; Takit, Column 4, Paragraph [0029], and Column 5, Paragraph [0033]-Column 6, Paragraph [0043]).

Please note, Applicant agrees with the Office Action that Takit does not disclose that the binder is 1-6 percent of the composition and, further, that Takit does not disclose uncoated fuel from 60-70 weight percent as well as the fuel particles with diameters of about 1 to 5 microns. In addition, Takit does not disclose fuel, the nitramine and ionic salt being 92 to 99 percent of the weight of the composition. (See Office Action, Pages 3-4).

Brown is also deficient.

Indeed, as discussed in the previous Amendment of April 27, 2007, Figures 1-2B of Brown merely disclose or suggest a conventional process for preparing solid propellant grains using thermoplastic binders and products thereof. This process is focused on providing cast propellant grains with thermoplastic elastomer binders to

ensure a high-density propellant grain with energetic particulates uniformly distributed, which can be scaled up to produce large rocket motors. In particular, Brown teaches a conventional process, and related structure, for forming solid propellant grains where thermoplastic elastomer particulates, oxidizer particulates, fuel particulates, plasticizers and other propellant ingredients are mixed to produce a dry blend. Importantly, in pertinent part, Brown teaches that an oxidizer, such as, a nitramine (RDX or HMX), is mixed with energetic particulates, that is, a fuel, such as, "commonly" particulate aluminum, with thermoplastic elastomer particulates, that is, the binder system. This dry blend is melted into a casing or mold where upon heating and cooling under a vacuum the binder encapsulates and holds the oxidizer and fuel particles in a relatively tight cross-linked matrix. Accordingly, the thermoplastic elastomer, that is, the binder, encapsulates the fuel and oxidizer materials. Please note, as indicated above, particulate aluminum is a "common" fuel material where an oxide layer may likely exist on the aluminum so that the energetic material may likely be a coated fuel. Therefore, the thermoplastic elastomer material may likely not be in direct contact with the fuel materials even though the thermoplastic elastomer encapsulates the fuel. (See Brown at Abstract; Column 1, lines 5-10; Column 1, line 35-Column 2, line 2; Column 2, lines 35-40; Column 3, lines 14-55; Column 5, lines 10-53; and Figures 1-2A).

In contrast, as previously discussed, Applicant discloses that the pressable explosive composition is formed by coating a nitramine, that is, an oxidizer, with a binder to form a coated nitramine. The coated nitramine is mixed with the substantially uncoated fuel particles, such as, aluminum, magnesium, magnalium and combinations thereof, so that the binder of the oxidizer does not encapsulate the fuel particles but,

nonetheless, contact exists between the binder and the fuel particle surfaces. (See Application above).

For emphasis, Applicant teaches the use of non-encapsulated free fuel particles where the binder of the oxidizer does not encapsulate and tightly hold the fuel particles as a continuous coating but the binder contacts the fuel particles. As a result, this relative freedom of the fuel particles is at least partially responsible for improved properties of the pressed thermobaric explosives. In contrast, Brown teaches a conventional structure, and related method, of binder-coated fuel particles where the fuel particles are coated as part of the blending process prior to packing the dry blend into a mold or casing, what is analogous to pressing. Accordingly, the fuel particles are encapsulated with the binder but the binder may not contact the fuel, particularly, as the "common" fuel is aluminum, which may have an oxide layer on the surface of the fuel. Therefore, Applicant traverses the assertion in the Office Action that Brown discloses or suggests, including free fuel particles (or substantially uncoated fuel particles) being non-encapsulated, let alone, the free fuel particles (or substantially uncoated fuel particles) are non-encapsulated free fuel particles in contact with the binder coated nitramine as claimed by Applicant. (See above; and Brown, Column 5, lines 34-65). Thus, Applicant's invention is structurally and functionally distinct from the Brown invention. (See above).

For at least the reasons outlined above, and using the most recent and more relaxed interpretation of obviousness under KSR v. Teleflex, No. 04-1350, 550 U.S. __ (April 30, 2007), Applicant submits that Takit and Brown, alone or in combination, do not disclose, teach or suggest the features of independent claim 1, including the substantially uncoated fuel particles are non-encapsulated substantially

uncoated fuel particles in contact with the binder. Similarly, the references, alone or in combination, do not disclose, teach or suggest the features of independent claims 10, 24 and 48, including the free fuel particles are non-encapsulated free fuel particles in contact with the binder.

For the reasons stated above, the claimed invention, and the invention as cited in independent claims 1, 10, 24 and 48, and related dependent claims 11-23 and 25-33, is fully patentable over the cited references.

II. Formal Matters and Conclusions

In view of the foregoing, Applicants submit that claims 1-33, and 48, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayment to Attorney's Deposit Account Number 50-1114.

Respectfully submitted,

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